

Application No.: 10/752,091
Amendment under 37 CFR 1.111
Reply to Office Action dated November 4, 2004
February 4, 2005

REMARKS

By this amendment, claim 2 has been cancelled and claim 1 has been amended in the application. Currently, claim 1 is pending in the application.

Claim 1 was rejected under 35 USC 102(b) as being anticipated by Miki et al. (U.S. Patent Application Publication No. 2002/0167578). Also, claim 2 was rejected under 35 USC 103(a) as being obvious over Miki et al. in view of Yamada et al. (U.S. Patent No. 6,042,228). The Examiner believed that Yamada et al. taught a printer having a conveyance mechanism capable of conveying plural printing media in parallel, 102, 103, wherein the plural air passages are so formed as to correspond to the respective plural printing media conveyed by the conveyance mechanism in column 12, lines 12-22. The Examiner also believed that it would have been obvious to modify the printer of Miki et al. to use the conveying mechanism and plural air passages of Yamada et al. in order to be able to print on more than one printing media at the same time and only use suction where the printing is actually taking place.

Application No.: 10/752,091
Amendment under 37 CFR 1.111
Reply to Office Action dated November 4, 2004
February 4, 2005

The present invention is respectfully traversed in view of the amendments to the claim 1 and the remarks below.

The present invention relates to an ink-jet printer for parallel processing of printing media. The device ensures flatness of the printing medium and at the same time restrains a decrease in ink-landing accuracy, even when the printing is performed on only a part of plural printing media that are arranged in parallel. The present invention includes a supporting member that supports a printing medium and has plural holes formed therein; an ink ejecting member capable of ejecting ink toward a printing medium supporting side of the supporting member; plural suction members capable of sucking air through the holes from a printing medium supporting side of the supporting member to an opposite side thereof; a partitioning member that partitions a space between the plural suction members and the supporting member to thereby form plural air passages; and a suction controller that controls the suction members such that, when the printing medium supporting side of the supporting member has a printing medium arranged thereon in only a part of plural regions each corresponding to each of the plural air passages and the ink ejecting member ejects ink toward the printing medium,

Application No.: 10/752,091
Amendment under 37 CFR 1.111
Reply to Office Action dated November 4, 2004
February 4, 2005

only the suction member corresponding to the region where the printing medium is arranged, among the plural suction members, may suck air. All of the other suction members in other regions without any printing medium arranged on the supporting member are stopped during this procedure so that the ink is not directed away from the area that it was intended to be disposed on.

Claim 1 has been amended to recite an ink-jet printer comprising "a conveyance mechanism capable of conveying plural printing media in parallel; a supporting member capable of supporting the plural printing media and has plural holes formed therein". Claim 1 also recites "the suction members and the air passages are both arranged so as to correspond to the respective printing media conveyed by the conveyance mechanism, and

wherein said ink-jet printer further comprises a suction controller that controls the suction members such that, when the printing medium supporting side of the supporting member has a printing medium arranged thereon in only a part of plural regions each corresponding to each of the plural air passages and the ink ejecting member ejects ink toward the printing medium, the suction controller controls the suction members so that only the suction member corresponding to the region where the printing medium is

Application No.: 10/752,091
Amendment under 37 CFR 1.111
Reply to Office Action dated November 4, 2004
February 4, 2005

arranged, among the plural suction members, may suck air and all of the other suction members in other regions without any printing medium arranged on the supporting member are stopped".

These features are not shown or suggested in the prior art of record.

Miki et al. disclose various techniques for conveying a single printing medium so as to prevent the printing medium from rising from a supporting member without causing any difficulty in conveyance due to too strong a suction force, and at the same time improving energy efficiency. One of these techniques is shown in FIG. 4A of Miki et al. In an embodiment of FIG. 4, suction members 43' are disposed on a side of a supporting member 38' opposite to its printing medium supporting face side, i.e., disposed on a right side of the supporting member 38' in FIG 4A, so that the suction members 43' are located on the upstream and downstream sides (the upper and lower sides in FIG. 4A) of the printing medium in its conveyance direction. The suction members 43' get driven sequentially from the upstream suction member in association with the conveyance of the printing medium (see paragraph 0118).

Application No.: 10/752,091
Amendment under 37 CFR 1.111
Reply to Office Action dated November 4, 2004
February 4, 2005

The structure of Miki et al. disclose a case where a single printing medium is conveyed, and the above-mentioned problems are relieved including the rising of a printing medium from a supporting member, difficulty in conveyance of a printing medium due to too strong a suction force, and energy efficiency.

Applicant respectfully submits that there is no teaching or suggestion in Miki et al. for parallel processing of printing media.

Yamada discloses an image forming apparatus that uses parallel conveyance of multiple printing media. However, Yamada does not disclose regulating multiple areas so that if only one printing medium is conveyed, the other area for the printing medium will not be subjected to a vacuum.

Applicant respectfully submits that one of ordinary skill in the art would not combine Yamada into Miki et al. as there is no teaching or suggestion in either reference for such a combination.

Even if it was possible to combine the parallel conveyance disclosed in Yamada in Miki et al. (which applicant respectfully submits is not possible), two suction members 43' as shown in FIG 4A would be disposed in the conveyance paths of the respective

Application No.: 10/752,091
Amendment under 37 CFR 1.111
Reply to Office Action dated November 4, 2004
February 4, 2005

printing media that are being conveyed in parallel, on the upstream and downstream sides of the printing media in their conveyance direction. Accordingly, in association with conveyance of the printing media, the upstream suction members 43' disposed in the conveyance paths of the respective media are driven, and then the downstream suction members 43' are driven. With a structure in which printing media are conveyed in two rows, for example, four suction members 43' would be provided. As a result, the upstream suction members 43' disposed in the conveyance paths of both printing media are driven even when only one printing medium is subjected to printing. At this time, the suction members 43' corresponding to the other printing medium that is not conveyed is also driven to cause airflow. This action leads ink ejected toward one printing medium away from its intended target due to the sucking action from the suction members 43' corresponding to the other printing medium, thereby decreasing ink-landing accuracy.

Therefore, Miki et al. and Yamada, individually or in combination do not teach or suggest the presently claimed invention and it would not have been obvious for one of ordinary skill in the art to combine the parallel conveyance feature into


Application No.: 10/752,091
Amendment under 37 CFR 1.111
Reply to Office Action dated November 4, 2004
February 4, 2005

Miki et al. to render the present claim obvious. Accordingly, applicant respectfully submits that claim 1 is allowable over the prior art of record and an action to this effect is respectfully requested.

If there are any questions or concerns regarding the amendments or these remarks, the Examiner is requested to telephone the undersigned at the telephone number listed below.

Respectfully submitted,

Date: February 4, 2005


Randolph A. Smith
Reg. No. 32,548

SMITH PATENT OFFICE

1901 Pennsylvania Ave., N.W.,
Suite 200
Washington, DC 20006-3433
Telephone: 202/530-5900
Facsimile: 202/530-5902
Tsuji020405